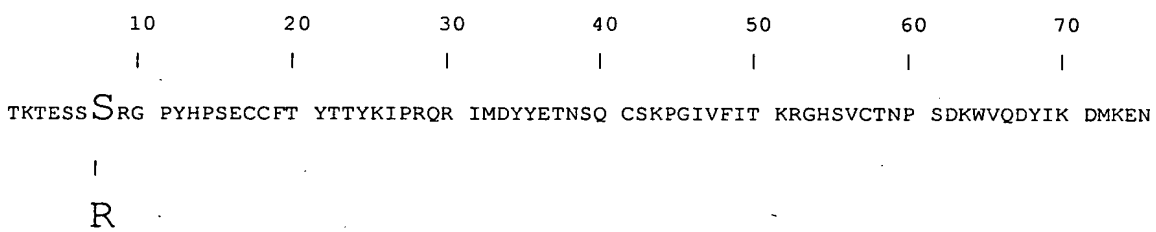
CLAIMS

1. A polypeptide having at least 90% homology with the amino acid sequence

HCC-1(1-74)



whereby R is an oligosaccharide composed out of N-acetylgalactosamine galactose or an oligosacharide composed out of N-acetylgalactosamine galactose and N-acetylneuraminic acids,

its biologically active fragments, analogs and derivatives, in particular amidated, acylated, and/or phosphorylized derivatives,
wherein the two cystein residues in positions 16 and 40 linked together by a disulfide bond and wherein the two cystein residues in positions 17 and 56 are linked together by a disulfide bond.

2. A polypeptide having at least 90% identity to the polypeptide sequence of claim 1.
3. The polypeptide of claim 1 being the chemokine glycosylated HCC-1.
4. The processed polypeptide according to claims 1 to 3 wherein (a) the N-terminus is modified by coupling a chemical group generating a chemokine having the structure of [Glyoxyloyl1]PHC 1-Pentane oxime, Nonanyl-PHC, [Glyoxyloyl1]PHC 1-Heptane oxime, [Glyoxyloyl1]PHC 1-Hexane oxime, [Glyoxyloyl1]PHC 1-Pentene oxime or Nonaoyl-PHC and wherein the modification is influencing the biological activity of PHC or wherein (b) amino acid residues of the N-terminus or of the C-terminus are deleted.
5. The chemokines according to claims 1 to 4 wherein one or more lysine, histidine, glutamate, aspartate, or cysteine residues of the chemokine

are modified by coupling a chemical group having the structure of polyethylenglycol and wherein this modification is increasing the plasma half-life time of HCC-1.

6. An antibody against an amino acid sequence of claims 1 to 5.

7. A diagnostic agent containing polyclonal or monoclonal antibodies against chemokine HCC-1 of claims 1 to 5.

8. A medicament containing chemokine HCC-1 of claims 1 to 5 or the antibody of claim 6.

9. A process for producing a polypeptide comprising polypeptides according to claims 1 to 5 using recombinant techniques or chemical synthesis.

10. A process for producing cells capable of expressing a polypeptide according to claims 1 to 5.

11. Use of the polypeptide according to claims 1 to 5, in particular HCC-1 molecules without glycosylation and N-terminally truncated HCC-1 molecules, especially HCC-1 (2-74), HCC-1 (3-74), HCC-1 (4-74), HCC-1 (5-74), HCC-1 (6-74), HCC-1 (7-74), HCC-1 (8-74), HCC-1 (9-74), HCC-1 (10-74), HCC-1 (11-74) and HCC-1 (12-74) for the manufacturing of a medicament for increase engraftment of stem cells.

12. Use of the polypeptide according to claim 11 for transplantation of progenitor and stem cells.

13. Use of the polypeptide according to claim 11 for treatment of progenitor- and stem cells prior to transplantation.

14. Use of the polypeptide according to claim 11 for *in vivo* application of such a molecule into patients which are receiving stem cell transplantation prior to and/or in the course of stem cell transplantation.

15. Use of the polypeptide according to claims 11 to 14 wherein the host patient are not conditioned.

16. Use of the polypeptide according to claims 11 to 14 wherein the host patient is conditioned under sublethal, lethal, or supralethal conditions.

17. Use of the polypeptide according to claim 16 wherein sublethal, lethal,

or supralethal conditions include treatment with total body irradiation, optionally followed by treatment with myeloablative or immunosuppressive agents.

18. Use of the polypeptide according to claim 16 wherein sublethal, lethal, or supralethal conditions include myeloablative or immunosuppressive treatment without total body irradiation.

19. Use of the polypeptide according to claims 11 to 18 for the transplantation of hematopoietic progenitor and stem cells, umbilical cord blood and placental stem and progenitor cells, liver stem and progenitor cells (oval cells), mesenchymal stem and progenitor cells, endothelial progenitor cells, skeletal muscle stem and progenitor cells (satellite cells), smooth muscle stem and progenitor cells, intestinal stem and progenitor cells, embryonic stem cells, and genetically modified embryonic stem cells, adult islet/beta stem- and progenitor cell, epidermal progenitor and stem cells, keratinocyte stem cells of cornea, skin and hair follicles, olfactory (bulb) stem and progenitor cells and side population cells from diverse adult tissues.

20. Use of the polypeptide according to claims 11 to 19 for the treatment of leukemias, lymphoproliferative disorders, aplastic anemia, congenital disorders of the bone marrow, solid tumors, autoimmune disorders, inflammatory diseases, primary immunodeficiencies, primary systemic amyloidosis, systemic sclerosis, heart diseases, liver diseases, neurodegenerative diseases, multiple sclerosis, M. Parkinson, stroke, spinal cord injury diabetes mellitus, bone diseases, skin diseases, replacement therapy of the skin, retina or cornea, other congenital disorders, vessel diseases like atherosclerosis or cardiovascular disease.